

PATENT  
Docket No. 529642001020

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*Valerie Cohen*

Valerie Cohen

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In the application of:

Allen G. GOOD et al.

Serial No.: 10/756,213

Filing Date: January 12, 2004

For: PLANTS WITH ENHANCED LEVELS  
OF NITROGEN UTILIZATION  
PROTEINS IN THEIR ROOT  
EPIDERMIS AND USES THEREOF

Examiner: Not Yet Assigned

Group Art Unit: Not Yet Assigned

**INFORMATION DISCLOSURE  
STATEMENT UNDER 37 C.F.R. § 1.97 & 1.98**

Mail Stop Sequence  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, Applicants submit for consideration in the above-identified application the documents listed on the attached Form PTO-1449. Copies of the documents were previously submitted in an Information Disclosure Statement and/or Office Action, directed to the related application Serial Number 09/493,803, filed January 28, 2000 (abandoned); Serial Number 09/568,221, filed May 9, 2000 (abandoned); Serial Number 08/599,968, filed February 14, 1996 (now US 6,084,153) and, accordingly, copies are not

included herewith. This protocol conforms with 37 C.F.R. §1.98(d) and M.P.E.P. 609(A)(2).

The Examiner is requested to make these documents of record in the application.

This Information Disclosure Statement is submitted:

- ☐ With the application; accordingly, no fee or separate requirements are required.
- ☐ Before the mailing of a first Office Action after the filing of a Request for Continued Examination under § 1.114. However, if applicable, a certification under 37 C.F.R. § 1.97 (e)(1) has been provided.
- ☒ **Within three months of the application filing date or before mailing of a first Office Action on the merits; accordingly, no fee or separate requirements are required. However, if applicable, a certification under 37 C.F.R. § 1.97 (e)(1) has been provided.**
- ☐ After receipt of a first Office Action on the merits but before mailing of a final Office Action or Notice of Allowance.
  - ☐ A fee is required. A check in the amount of \_\_\_ is enclosed.
  - ☐ A fee is required. Accordingly, a Fee Transmittal form (PTO/SB/17) is attached to this submission in duplicate.
  - ☐ A Certification under 37 C.F.R. § 1.97(e) is provided above; accordingly, no fee is believed to be due.
- ☐ After mailing of a final Office Action or Notice of Allowance, but before payment of the issue fee.
  - ☐ A Certification under 37 C.F.R. § 1.97(e) is provided above and a check in the amount of \_\_\_ is enclosed.
  - ☐ A Certification under 37 C.F.R. § 1.97(e) is provided above and a Fee Transmittal form (PTO/SB/17 is attached to this submission in duplicate.)

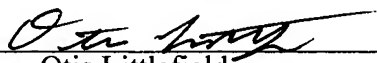
Applicants would appreciate the Examiner initialing and returning the Form PTO-1449, indicating that the information has been considered and made of record herein.

The information contained in this Information Disclosure Statement under 37 C.F.R. § 1.97 and § 1.98 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

In the unlikely event that the transmittal form is separated from this document and the Patent Office determines that an extension and/or other relief (such as payment of a fee under 37 C.F.R. § 1.17 (p)) is required, Applicants petitions for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing 529642001020. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: April 21, 2004

Respectfully submitted,

By:   
Otis Littlefield  
Registration No. 48,751

Morrison & Foerster LLP  
425 Market Street  
San Francisco, California 94105-2482  
Telephone: (415) 268-7000  
Facsimile: (415) 268-7522

APR 26 2004

PTO/SB/08 (2-92)

Sheet 1 of 3

Form PTO-1449

# INFORMATION DISCLOSURE CITATION IN AN APPLICATION

(Use several sheets if necessary)

Docket Number 529642001020

Application Number 10/756,213

Applicant

Allen G. GOOD et al.

Filing Date January 12, 2004

Group Art Unit Not Yet Assigned

Mailing Date April 21, 2004

## U.S. PATENT DOCUMENTS

Examiner Initials	Ref. No.	Date	Document No.	Name	Class	Subclass	Filing Date If Appropriate
	1.	07/2000	6,084,153	Good et al.			
	2.	05/1998	5,750,399	Dixon et al.			
	3.	10/1993	5,256,558	Coruzzi et al.			

## FOREIGN PATENT DOCUMENTS

Examiner Initials	Ref. No.	Date	Document No.	Country	Class	Subclass	Translation YES NO
	4.	1988	AU 17321/88	Australia			
	5.	04/1994	WO 95/09911	PCT			
	6.	08/1997	WO 97/30163	PCT			
	7.	11/1990	WO 90/13633	PCT			
	8.	04/1991	WO 91/04325	PCT			
	9.	08/2001	WO 01/55433	PCT			
	10.	04/1993	WO 93/07279	PCT			

## OTHER DOCUMENTS

(including author, title, Date, Pertinent Pages, Etc.)

Examiner Initials	Ref. No.	Title
	11.	Montgomery, J. et al., (1993) "Identification of an Ethylene-Responsive Region in the Promoter of a Fruit Ripening Gene." Proc. Natl. Acad. Sci., Vol. 90, pp. 5939-5943.
	12.	Kozziel, M. G. et al. (1996) "Optimizing Expression of Transgenes with an Emphasis on Post-Transcriptional Events." Plant Molecular Biology, Vol. 32, pp 393-405.
	13.	Back et al. Plant Molecular Biology 17:9-18, 1991.
	14.	Jones, Jennifer T. et al. (1995) "Developmental Expression of a Turgor-Responsive gene that Encodes an Intrinsic Membrane Protein." Plant Molecular Biology, Vol. 28, No. 6, pp 983-996.
	15.	Bohnert, Hans J. et al. "Adaptions to Environmental Stresses" Plant Cell 7:1099-111 (1995)
	16.	Cheng, Chi-lien et al. "A new locus (NIA 1) in Arabidopsis thaliana encoding nitrate reductase" The EMBO J. 7(11):3309-14 (1988)
	17.	Cheng et al. "Differential expression of the two arabidopsis nitrate reductase genes" Plant Physiol. 96: 275-279, (1991)

EXAMINER:

DATE CONSIDERED:

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

<b>Form PTO-1449</b>  <b>INFORMATION DISCLOSURE CITATION</b> <b>IN AN APPLICATION</b>  <i>(Use several sheets if necessary)</i>	Docket Number 529642001020	Application Number 10/756,213
	Applicant  Allen G. GOOD et al.	
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18.	Crawford, Nigel M. "Nitrate: Nutrient and Signal for Plant Growth" Plant Cell 7:859-68 (1995)
19.	Eckes, Peter et al. "Overproduction of alfalfa glutamine synthetase in transgenic tobacco plants" Molec. Gen. Genet. 217:263-68 (1989)
20.	Good, A.G. and Maclagan, J.L. "Effects of drought stress on the water relations in Brassica species" Can. J. Plant Sci. 73:525-29 (1993)
21.	Good, Allen G. and Zaplachinski, Steven T. "The effects of drought stress on free amino acid accumulation and protein synthesis in Brassica napus" Physiol. Plant 90:9-14 (1994)
22.	Goodwin and Mercer, Introduction to Plant Biochemistry, 2nd Edition (Pergamon Press, New York, N.Y., 1983), Chapter 9 "Nitrogen Fixation, Amino Acid Biosynthesis and Proteins" pp. 328-61.
23.	Hageman, R.H. and Lambert, R.J. "The Use of Physiological Traits for corn improvement" Corn and Corn Improvement, 3rd Edition (Sprague & Dudley, American Society of Agronomy, 1988) pp. 431-61
24.	Hanson, Andrew D. and Hitz, William D. "Metabolic Responses of Mesophytes to Plant Water Deficits" Annu. Rev. Plant Physiol. 33:163-203 (1982)
25.	Hemon, Pascale et al. "Targeting of glutamine synthetase to the mitochondria of transgenic tobacco" Plant Mol. Blot. 15:895-904 (1990)
26.	Hirel, Bertrand et al. "Forcing expression of a soybean root glutamine synthetase gene in tobacco leaves induces a native gene encoding cytosolic enzyme" Plant Mol. Biol. 20:207-18 (1992)
27.	Lam, Hon-Ming et al. "Use of Arabidopsis Mutants and Genes To Study Amide Amino Acid Biosynthesis" Plant Cell 7:887-98 (1995)
28.	Morgan, James M. "Osmoregulation and Water Stress in Higher Plants" Annu. Rev. Plant Physiol. 35:299-319 (1984)
29.	Muench, Douglas G. and Good, Allen G. "Hypoxically inducible barely alanine aminotransferase: cDNA cloning and expression analysis" Plant Mol. Biol. 24:417-27 (1994)
30.	Peterman, T. Kaye and Goodman, Howard M. "The glutamine synthetase gene family of Arabidopsis thaliana: light-regulation and differential expression in leaves, roots and seeds" Mol. Gen. Genet. 230:145-54 (1991)
31.	Rhodes, David et al. "Metabolic Changes Associated with Adaptation of Plant Cells to Water Stress" Plant Physiol. 82:890-903 (1986)
32.	Sakakibara, Hitoshi et al. "Isolation and Characterization of a cDNA That Encodes Maize Glutamate Dehydrogenase" Plant Cell Physiol. 36(5):789-97 (1995)
33.	Skriver, Karen and Mundy, John "Gene Expression in Response to Abscissic Acid and Osmotic Stress" Plant Cell 2:503-12 (1990)
34.	Son, Daeyoung and Sugiyama, Tatsuo "Molecular cloning of an alanine aminotransferase from NAD-malic enzyme type C4 Panicum miliaceum" Plant. Mol. Biol. 20:705-13 (1993)
35.	Son, Daeyoung et al. "Purification and Characterization of Alanine Aminotransferase from Panicum miliaceum leaves" Arch. Biochem. Biophys. 289(2):262-66 (1991)
36.	Stewart, Cecil R. et al. "Inhibition of Proline Oxidation by Water Stress" Plant Physiol. 59:930-32 (1977)

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37.	Temple, Stephen et al. "Modulation of glutamine synthetase gene expression in tobacco by the introduction of an alfalfa glutamine synthetase gene in sense and antisense orientation: molecular and biochemical analysis" Mol Gen. Genet. 236:315-25 (1993)
38.	Tsai, Fong-Ying and Coruzzi, Gloria M. "Dark-induced and organ-specific expression of two asparagine synthetase genes in Pisum sativum" The EMBO J. 9(2):323-32 (1990)
39.	Turner, N.C. "Drought resistance and Adaption to Water Deficits in Crop Plants" Stress Physiology in Crop Plants (Harry Mussell & Richard C. Staples eds., John Wiley & Sons, New York, 1979) pp. 343-72
40.	Udvardi, Michael K. and Kahn, Michael L. "Isolation and analysis of a cDNA clone that encodes an alfalfa (Medicago saliva) aspartate aminotransferase" Mol Gen. Genet. 231:97-105 (1991)
41.	Vanlerberge, Greg C. et al. "Anaerobic Metabolism in the N-Limited Green Alga Selenastrum minutum" Plant Physiol. 95:655-58 (1993)
42.	Voetberg, Gary S. and Sharp, Robert E. "Growth of the Maize Primary Root at Low Water Potentials" Plant Physiol. 96:1125-30 (1991)
43.	Zehnacker, Claire et al. "Purification and properties of tobacco ferredoxin-dependent glutamate synthase, and isolation of corresponding cDNA clones" Planta 187:266-74 (1992)
44.	Strocher, V. L. et al. "Molecular cloning and expression of a turgor-responsive gene in brassica napus" Plant Molecular Biology 27: 541-551 (1995)
45.	Guerrero, F. D. et al. "Turgor-responsive gene transcription and RNA levels increase rapidly when pea shoots are wilted. Sequence and expression of three inducible genes" Plant Molecular Biology 15: 11-26 (1990)
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49.	New England Biolabs 1988-1989 catalog, product #1230.

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